WESTERN

FARMER & GARDENER.

Vol. II. **INDIANAPOLIS, Ia., MARCH 16, 1846.** **No. 6.**

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S. V. B. NOEL, *Publisher and Printer.*

WESTERN FARMER AND GARDENER.

INDIANAPOLIS, MONDAY, MARCH 16, 1846.

WESTERN FARMER AND GARDENER.

We send this number to many post-offices and to gentlemen supposed to be interested in the progress of horticulture and agriculture. We think it a fair, average specimen of the work.

The Farmer and Gardener is published every two weeks, and, it is believed, is offered at a lower price than any paper in the United States.

One copy for a dollar;
Four and under ten, 75 cents;
Ten copies, - - 50 cents.

Whoever takes the trouble to collect the names and money may insert his own name as the eleventh on the list, and send, for the whole, *five dollars.* This is putting the work at *forty-five cents!* We dispense with the service of agents, in hopes that by the very low terms at which we put the work, gentlemen may be induced to volunteer for their own neighborhoods. If it be possible, we wish permanently to establish a paper at so cheap a rate that the poorest man in the shop or on the farm,—the apprentice, the day-laborer, the young farmer just beginning — may have it within his reach. If experience proves that the voluntary aid of friends abroad does not suffice, we do not mean to give the paper up, but to bring the price up and to employ agents. A good agency in two years would procure us 5000 names; but in four years, at our present low rates, we hope for double that number without an agency.

☞ Our subscribers will please understand, that at any post office where a club of ten has been formed, other subscribers may be received at the club price.

☞ We have received several valuable articles which will appear in our next; among others, one from the pen of Samuel Judah, Esq., on *sheep raising.* The two articles of Mr. Stevenson and Mr. Judah will afford our readers a mass of the most practical information. Mr. Judah once promised us an article on the cultivation of the grape, and this is the season of the year in which it would be particularly valuable.

☞ Our thanks are due to Judge Wick for several favors, grateful to us personally and valuable to our readers. We shall notice the new Bogardus mill, of which he has sent us an account, in our next. William J. Brown, Esq., will accept our thanks for a package of valuable seeds, which we shall distribute among safe and skilful cultivators.

ARTICLES IN THIS NUMBER.—Our readers, of course, look at every word written by J. T. P. We have never seen an article from his pen that did not contain information. We are especially pleased with the plan and execution of his "Reviews of Vol. One," and think they grow better and better as he "gets his hand in."

The speculations of Tyro on the pear blight are ingenious, but we can hardly agree with the fore part of his article, that the north-western States are unsuited in climate to the pear. On the contrary, as soon as the conditions of cultivation are more thoroughly understood, we believe the pear or chard will be one of the most desirable and lucrative parts of the farm. But, perhaps, our unbelief is mere unwillingness to abandon this princely fruit. Our friend knows how to use his pen, and composes with more than ordinary correctness.

We are obliged to A. D. W. "for leading off" for Tippecanoe county. Now that he is in the harness, we shall expect him to give long and regular pulls on the Farmer and Gardener. But ought not some hundreds of your fine farmers on those rich prairies to have an agricultural paper? Can you not circulate us a little?

R. H.—Although anticipated by Dr. Richmond in point of time, yet your article is none the less valuable. It is no trouble for you to write, and you appear to have been in the habit of observing. Do not fail to stand by us.

A. R.—Although we have attended by private correspondence to your request, we also insert a portion in the Farmer and Gardener; for, that which is necessary to you, others will need. Write again.

DANIEL EMBREE.—We approve of your suggestion in respect to the interchange of new and valuable articles. New kinds of fruit, vegetables, flowers, shrubs, scientific specimens or curiosities might be sent to us either for distribution or for the formation of an agricultural museum.

We are obliged to A. C. Stevenson for his prompt and able reply to the questions of "a beginner." We hope that a few more such instructive articles will evince to all our readers the advantages of *asking questions*.

We may learn from the example of English papers in this respect. Our (London) Gardeners' Chronicle contains replies to not less than *forty* enquiries. This is a weekly paper, and every week contains about the same amount both of questions and answers. The man who asks a question puts a case requiring exact knowledge. He who answers a question is bringing his experience to the very market where it is wanted.

J. M. W. has answered practical questions in a business-like manner; we wish we had a hundred just such correspondents.

☞ "*Why do you not exchange with the* DOLLAR FARMER? *Please attend to it.*" Why does not the Dollar Farmer exchange with us? We sent the Indiana Farmer and Gardener for three months and got no return; we then, editorially, in No. 6, called attention to the fact, and waited two months more; we then again, in No. 10, specially requested an exchange, and received neither paper or notice. We then got vexed, *passim;* and, lastly, when we received the above endorsement, we laughed heartily at the cool manner in which we were blamed. My dear brother editor, whoever you are, an exchange implies *reciprocity*. We shall, however, send the Farmer and Gardener.

☞ We again call attention to a fine assortment of Landreth's GARDEN SEEDS at A. G. Willard's store. We have selected our own stock from them, and without prophesying that they will do well, we may express our belief that they are superior to any others in our market. We do not know what care may have been bestowed on the Union Village seeds; but in years past they have been unworthy of confidence.

THE BREEDING OF FRUITS.

Because, as yet, no certain rules can be laid down for the production of a given result by crossing flower on flower, it does not follow that there are not certain invariable principles which govern the process. It is but a little while since breeding animals had any pretension to scientific rules. But, by careful practice and observation, the most important improvement has been attained in all the animals belonging to the farm. And if careful research and experiment do not result in absolute certainty, they will yet render the production of fine varieties of fruit, by the crossing of the old ones, a matter of much less chance than it now is.

The art of cross-fertilization is being much more practiced by florists than by pomologists, and for obvious reasons. What the breeder of annuals can do in a few months requires more than as many years from him that essays to raise new fruits. Many florists' flowers, however, require as long and even a longer time, than apples or pears; and it is a marvel that the phlegmatic patience of the tulip-loving Dutch Jobs should not have found imitators in the orchard. If a man can wait ten years to ascertain that all his seedling bulbs are good for nothing, or, at the best, that out of ten thousand but one or two are worth keeping, surely the patience of an enthusiast in fruit ought not to snap by being drawn through such a space.

Two methods for originating new varieties of fruit have been practiced; the *natural* method of Van Mons, and the *artificial* method of Knight. Van Mons, born at Brussels in 1765, was a man of fine genius and thorough education. Although he is chiefly known as a pomologist, his labors in the nursery were only incidental to the regular occupation of a public scientific life. M. Poiteau quaintly says of him that he wrote "on the gravest subjects, in the midst of noise, in a company of persons who talk loudly on frivolous subjects, and

takes a part in the conversation without stopping his pen."

Van Mons' theory is founded upon two physical facts:

1. *That all seeds in a state of nature can be made by cultivation to vary from their condition; which variations may be fixed, and become permanent.*

2. *That all cultivated seeds have a tendency to return toward that natural state from which they originally varied.* We say *toward*, for he supposed that an improved fruit would never return absolutely to the original and natural type.

It was upon this last principle that Van Mon's accounted for the fact, that as a general thing, the seeds of fine old varieties of fruit produced only inferior kinds. Recourse could not be had therefore to the seeds of improved fruit.

On the other hand, the seed of fruits absolutely wild, would produce fruits exactly like their original. If the seed of the wild pear be gotten from the wood and planted in a garden, every seed will yield only the wild pear again. But if a wild pear be transplanted, and put under new influences of soil, climate and cultivation, its fruit will begin to augment and improve. The change is not merely upon the size and appearance of the fruit; it affects also the qualities of the *seed*. For if the seed be now planted, the difference between a wild pear, *in a state of nature* and the same wild pear tree *in a state of cultivation* will at once appear in this, that whereas the seed of the first is *constant*, the seed of the second shews an inclination to *vary*. Here then is a starting. When once the habit of *variation* is gained, the foundation of improvement is laid. In a short time the enthusiasm of Van Mons had collected into his garden 80,000 trees upon which he was experimenting, nor can the result of his labors be better stated than in the words of M. Poiteau:

"That so long as plants remain in their natural situation, they do not sensibly vary, and their seeds always produce the same, but on changing their climate and territory, several among them vary, some more and others less, and when they have once departed from their natural state, they never again return to it, but are removed more and more therefrom, by successive generations, and produce, sufficiently often, distinct races, more or less durable, and that finally if these variations are even carried back to the territory of their ancestors, they will neither represent the character of their parents, or ever return to the species from whence they sprung."

Accordingly Van Mons began to sow the seeds of natural and wild fruit which were in a *variable* state. By all means within his power he hastened his seedlings to show fruit. The first generation showed only poor fruit but decidedly better than the wild. Selecting the seed of the best of these, he sowed again. From the fruit of these he sowed the third generation. From the third, a fourth; and from the fourth, a fifth; as far as the eighth generation.

His experience showed that there was great difference among different species of fruit, in the number of generations through which they must pass before they were perfect. The apple yielded good fruit in the fourth generation. Stone fruits produced perfect kinds in the third generation. Some varieties afforded perfect fruit in the fifth generation, while others go on improving to the eighth.

The time required for this renovation diminished at each remove from the normal or wild state. Thus, the trees from the second sowing of the pear seed fruited in from ten to twelve years; those from their seed, or of the third generation in from eight to ten years; those of the fourth generation in from six to eight years; those of the fifth generation, in six years; and those in the eighth, in four years. These are the *mean* terms of all his experiments.

To obtain perfect stone fruits, through four successive generations, from parent to son, required from twelve to fifteen years; the apple required twenty years, and the pear, when carried only to the fifth generation, required from thirty to thirty-six years.

Hybridization, or Knight's Method.—Andrew Knight, one of the most original and philosophic horticulturists that ever lived, pursued an entirely different method—that of *cross-fertilization*. He carefully removed the anthers from the blossoms upon which he wished to operate, so that the stigma should not receive a particle of the pollen belonging to its own flower. He then procured from the variety which he wished to cross, a portion of the pollen, and artificially impregnated the prepared blossom with it. When the fruit thus produced had ripened its seeds, they were sown, and by regular process brought into bearing. The progeny were found to combine, in various degrees of excellence, the qualities of both parents.

Remarks on the two Methods.

1. Both Van Mons and Knight believed in a degeneracy of plants; but the degeneracy of the one system is not to be confounded with that of the other.

Knight believed that varieties had a regular period of existence; although, as in animal life, care and skill might make essential difference in the longevity, yet they could in nowise avert the final catastrophe; a time would come, sooner or later, at which the vegetable vitality would be expended, and the variety must perish by exhaustion—by *running out*.

Van Mons believed that an improved variety tended to return to its normal state—to its wild type; and although he did not believe that it could ever be entirely restored to its wild state, it might go so far as to make it worthless for useful purposes.

Knight believed in absolute decay; Van Mons, in retrocession. According to Knight's theory, varieties of fruit cease by the natural statute of limitation; according to Van Mons, they only fall from grace.

There can be no reasonable doubt that Van Mons held the truth, and as little, that Knight's speculations were fallacious. Bad cultivation will cause anything to run out; no plant will perfect its tissues or fruit without the soil affords it elementary materials. The so-called exhausted varieties renew their youth when transplanted into soils suitable for them.

2. Against Van Mon's method it is urged, that it enfeebles the constitution of plants; that, *enfeebling* is the very key of the process. This Mr. Downing urges with emphasis. Saying that, "the Belgian method (Van Mons') gives us varieties often impaired in their *health* in their very origin." It is one thing to restrain the energy of a plant, and another, to enfeeble it. It may be enfeebled until it becomes unhealthy; but rampant vigor is as really an unhealthy state as the other extreme. A tree refuses fruit and is liable to death from a coarse, open, rank growth, as much as from a languor which suppresses all growth.

No; that which we imagine Van Mons to have effected was a smaller, but more *compact* and *fine*, growth. Nor are we aware that, *as a matter of experience;* the Belgian pears prove to be any more tender than the English. Doubtless, there are trees of a delicate and tender habit in the number; but as few, in proportion to the great number originated, as by any other method.

The two main objections to the plan are the *time required;* and the utter *uncertainty of the results.* To imitate the process would require a Van Mons' patience, in which, probably, he was never surpassed; and his enthusiasm, which was extraordinary even for a horticulturist, a race of beings supposed to be anything but phlegmatic.

The *uncertainty* is such as to prevent any determinate improvement. We get, not what we may wish, but whatever may happen to come. Nothing that art can do would affect the size, color, hardness, or in any respect, the general character of the fruit.

It is in these aspects that Knight's method must always be preferred as a practical system. We can obtain a return for our labor in *one-fifth* the time; and, what is even more important, we can regulate, before-hand, the results, within certain limits. The new fruit is to be made up of the qualities of its parents in various proportions. We cannot determine what the proportions shall be; but we can determine what parents shall be selected. Nor is it at all improbable that, when knowledge has become more exact by a longer and larger experience, the breeder of fruit may cross the varieties with nearly the same certainty of result, as does the breeder of stock. It is upon this feature, the power which science has over the results to be obtained, that we look with the greatest interest; and we shall soon resume the subject to urge upon scientific cultivators the duty of perfecting our fruits by judicious breeding.

PRUNING ORCHARDS---SPRING PRUNING.

Farmers are, we suppose, universally busy, about this time, in pruning their orchards. This habit of early spring pruning has been handed down to us from English customs, and farmers do it because it always has been done. Besides, about this time, men have leisure, and would like to begin the season's work; and pruning seems quite a natural employment with which to introduce the labors of the year.

It is not possible for American, but more emphatically for western cultivators to do worse than to pattern upon the example of British and Continental authorities in the matter of orchards and vinyards. The summers of England are moist, cool, and deficient in light. Our summers are exactly the reverse—dry, fervid, and brilliant. The stimuli of the elements with them are much below, and with us much above, par. In consequence their trees have but a moderate growth; ours are inclined to excessive growth.

Their whole system of open-culture, and wall-training is founded upon the necessity of *husbanding all their resources.* To avail themselves of every particle of light, they keep open the heads of their trees, so that the parsimonious sunshine shall penetrate every part of the tree. Let this be done with us, and there are many of our trees that would be killed by the force of the sun's rays upon the naked branches in a single season, or very much enfeebled. For the same general reasons the English reduce the quantity of bearing wood, shortening a part, or wholly cutting it out, that the residue, having the whole energy of the tree concentrated upon it, may perfect its fruit. Our difficulty being an excess of vitality, this system of shortening and cutting out, would cause the tree to send out suckers from the root, and trunk, and would fill the head of the tree with

rank water-shoots, or *gourmands*. What would be thought of the people of the torid zone should they borrow their customs of clothing from the practice of Greenland? It would be as rational as it is for orchardists, in a land whose summers are long and of high temperature, to copy the customs of a land whose summers are prodigal of fog and rain, but penurious of heat and light.

Except to remove dead, diseased or interfering branches, do not cut at all.

But if pruning is to be done, wait till after corn-planting. *The best time to prune is the time when healing will the quickest follow cutting.* This is not in early spring but in early summer. The elements from which new wood is produced are not drown from the rising sap, but from that which descends between the bark and wood. This sap, called *true sap*, is the upward sap after it has gone thro' that chemical laboratory, the leaf. Each leaf is a chemical contractor, doing up its part of the work of preparing sap for use, as fast as it is sent up to it from the root through the interior sap passages. In the leaf, the sap gives off, and receives, certain properties; and when thus elaborated, it is charged with all those elements required for the formation and sustentation of every part of vegetable fabric. Descending, it gives out its various qualities, till it reaches the root; and whatever is left then passes out into the soil.

Every man will perceive that if a tree is pruned in spring before it has a leaf out, there is no sap provided to repair the wound. A slight granulation *may* take place, in certain circumstances, and in some kinds of plants, from the elements with which the tree was stored during the former season; but, in point of fact, a cut usually remains without change until the progress of spring puts the whole vegetable economy into action.

In young and vigorous trees, this process may not seem to occasion any injury. But trees growing feeble by age will soon manifest the result of this injudicious practice, by blackened stumps, by cankered sores, and by decay.

If one must begin to do something that looks like spring-work, let him go at a more efficient train of operations. With a good spade invert the sod for several feet from the body of the tree. With a good scraper remove all dead bark. Dilute (old) soft soap with urine; take a stiff shoe-brush, and go to scouring the trunk and main branches. This will be labor to some purpose; and before you have gone through a large orchard faithfully, your zeal for spring-work will have become so far tempered with knowledge, that you will be willing to *let pruning alone till after corn-planting*.

Two exceptions or precautions should be mentioned.

1. In the use of the wash; new soap is more *caustic* than old; and the sediments of a soap barrel much more so than the mass of soap. Sometimes trees have been injured by applying a caustic alkali in too great strength. There is little danger of this when a tree is rough and covered with dead bark or dirt; but when it is smooth and has no scurf it is more liable to suffer. ***Trees should not be washed in dry and warm weather.*** The best time is just before spring rains, or before any rain.

2. Where fruit trees are found to have suffered from the winter, as they have done severely this winter, pruning cannot be too early, and hardly too severe. If left to grow, the heat of spring days ferments the sap and spreads blight throughout the tree; whereas by severe cutting, there is a chance, at least, of removing much of the injured wood. We have gone over the pear trees in our own garden, and wherever the least affection has been discovered, we have cut out every particle of the last summer's wood; and cut back until we reached sound and healthy wood, pith and bark.

SLITTING THE BARK OF TREES.

This is a practice very much followed by fruit-raisers. Downing gives his sanction to it. Mr. Pell, (N. Y.) famous for his orchards, includes it as a part of his system of orchard cultivation. Men talk of trees being *bark-bound*, &c., and let out the bark on the same principle, we suppose, as mothers do the pantaloons of growing boys. We confess a prejudice against this letting out of tucks in a tree's clothes. We do not say that there may not be cases of diseased trees in which, as a remedial process, this may not be wise; but we should as soon think of slitting the skin on a boy's legs, or on calves or colts, as a regular part of a plan of rearing them, as to slash the bark of sound and healthy trees. *Bark-bound?* what is that? Does the inside of a tree grow faster than the outside? When bark is slit, is it looser around the whole trunk than it was before? When granulations have filled up this artificial channel, is not the bark just as tight as it was before? Mark, we do not say that it is *not* a good practice; but only that we do not yet understand *what* the benefit is.

"Why, the bark bursts sometimes."

Yes, disease may thus affect it; and when it does, *cut, if necessary.*

"Does it do any harm?" Perhaps not; neither would it to put a weathercock in the top of every tree; or to bury a black cat under the roots, or to mark each tree with talismanic signs. Is it worth

while to do a thing just because it does no harm?

"But when a tree is growing too fast, does it not need it?" Yes, if it can be shown that the bark, alburnum, &c., do not increase alike. That excitement which increases the growth of one part of a tree will, as a general fact, increase the growth of every other. In respect to the *fruit and seed*, doubtless, particular manures will develope special properties. But is there evidence that such a thing takes place in respect to the various tissues of the wood, bark, &c.?

"But if a tree be sluggish, and bound, will it not help it." Whatever excites a more vigorous circulation will be of advantage. Whether any supposed advantage from the knife arises in this way, we do not know. But a good *scraping*, or a scouring off of the whole body with sand, and then a pungent alkaline wash — (soft soap diluted with urine) would, we think, be better for bark-bound trees than the whole tribe of slits, vertical, horizontal, zig-zag, or waved. But we should be glad to hear both the facts and reasonings on which the practice is founded, from some one who has implicit faith in its virtues.

SPRING-WORK FOR PUBLIC-SPIRITED MEN.

Shade-trees. — One of the first things that will require your action is, the planting of *shade-trees*. Get your neighbors to join with you. Agree to do four times as much as your share, and you will, perhaps, then obtain some help. Try to get some more to do the same in each street of your village or town.

Locusts, of course you will set for immediate shade. They will in three years afford you a delightful verdant umbrella as long as the street. But *maples* form a charming row, and the autumnal tints of their leaves and the spring flowers add to their beauty. They grow quite rapidly, and in six years, if the soil is good and the trees properly set, they will begin to cast a decided shadow. Elms are, by far, the noblest tree that can be set, but they will have their own time to grow. It is best, then, to set them in a row of other trees, at about fifty or a hundred feet apart, the intervening space to be occupied with quicker-growing varieties.

The beech, buckeye, horse-chestnut, sycamore, chestnut, and many others may be employed with advantage. Now, do not let your court-house square look any longer so barren. Will not the commissioners do, as they have done in Marion county, set out the space in shade-trees at the public expense? If they will follow so creditable an example pray don't imitate the *manner*. Some twenty *rows* of trees stand up with the most distressing exactness. They were laid out by a surveyor with his chain, and do not vary, we believe, an inch from a strait line.

Avenues may be lined with rows of trees, but squares and open spaces should have them grouped or scattered in small knots and parcels in a more natural manner.

May-weed. — There was never a better time to exterminate this villainous, stinking weed than this summer will be. The drought of last season reduced it to great extremities. It will probably appear much thinner than usual. Just as soon as the first blossoms show, "up and at it." Club together in your streets and agree to spend one day *a-mowing*. Keep it down thoroughly for one season and it will no longer be-drabble your wife's and daughters' dresses, nor fill the air with its pungent stench, or weary the eye with its everlasting white and yellow.

Side-walks. — What if your neighbors are lazy; what if they do not care? Some one ought to see that there are good gravel walks in each village. You can have them in this way: Take your horse and cart and make them before your own grounds, and then go on, no matter who owns, and when your neighbors see that *you* have public spirit, they will, by and bye, be ready to help you. But the grand way to do nothing is, not to lift a finger yourself, and then to rail at your fellow-citizens as selfish and devoid of all public spirit.

Protect Public Property. — What if it does concern every body else as much as it does you? Some one ought to see that fences about the square are kept in repair. Some one ought to save the trees from cattle: some one ought to have things in such trim as that the inhabitants can be proud of their own town. Pride is not decent, when there is nothing to be proud of; but when things are worthy of it, no man can be decent who is devoid of a proper pride. The church, the school-house, fences, trees, bridges, roads, public squares, side-walks, these are things which tell tales about people. A stranger, seeking a location, can hardly think well of a place, in which the distinction between the house and stye are not obvious; in which every one is lazy when greediness does not excite him, and where general indolence leaves no time to think of the public good.

When politicians are on the point of dissolving in the very fervent heat of their love for the public, it would recall the fainting soul quicker than hartshorn or vinegar to ask them — did you ever set out a shade-tree in the street? Did you ever take an hour's pains about your own village? have you secured it a lyceum? Have you watched over its schools? Have you aided in any arrange-

ments for the relief of the poor? Have you shewn any *practical* zeal for good roads, good bridges, good side-walks, good school-houses, good churches? Have the young men in your place a public library?

If the question were put to many distinguished village patriots, what have you done for the public good? — the answer would be: "why, I've talked till I'm hoarse, and an ungrateful public refuse me any office by which I may shew my love of public affairs in a more practical manner."

SPRING-WORK IN THE GARDEN.

Vegetable Garden. — Before you meddle with the garden, do two things: first inspect your seeds, assort them, rejecting the shrunk, the mildewed, the sprouted, and, generally, the discolored. Buy early, such as you need to purchase. Do not wait till the minute of planting before you get your seeds. Second, make up your mind beforehand just what you mean to do in your garden for the season.

Preparation. — Haul your manure and stack it in a corner; do not spread it till the day that you are ready to turn it under; cut your pea-brush and put it under shelter; inspect your bean-poles and procure such as are necessary to replace the rotten or broken ones; inspect every pannel of the garden fence; one rail lost, may ruin, in a night, two month's labor, and more temper and grace than you can afford to spare in a whole year. Clean up all the stubble, haulm, straw, leaves, refuse brush, sticks and rubbish of every sort, and cast it out, or burn it and distribute the ashes. If you intend to do your work in the best manner, see that you have the *sorts* of manure that you may need through the season: ashes, fine old barn-yard manure, green long manure, leaf-mould from the wood, top-soil from pastures, &c. &c. Every florist understands the use of these.

Permanent Beds. — Lay about three or four inches of old manure on your asparagus bed and fork it in, but so as not to lacerate the crown of the roots. The empire of asparagus is gone when the crown is lost.

Coarser manure may be put upon your pie-plant bed, as a strong and succulent leaf-stalk is desirable. Let it be thoroughly forked, gently near the stools and deeply between the rows.

With an iron-toothed rake go over your old strawberry beds that are matted together, and rake them severely. Strawberries that have been kept in hills and cleanly tended should be manured between the rows and gently spaded or forked.

Early Sowings. — Tomatoes, eggplant, early cucumber, cabbage, cauliflowers, broccoli, lettuce, melons, celery for an early crop, should have been, before this, well advanced in a hot-bed. If not, no time is to be lost; and if a first sowing is well along, a second sowing should be made.

You cannot get too early into the ground after the frost is out and the wet a little dried, onions for seed or a crop, lettuce, radishes, peas, spinache, parsnep, early cabbage, and small salads.

Our spring is so backward that it is not probable that the full train of garden-work can be put in operation before the first of April, and then, we shall have something more to say.

Flower Garden. — Remove the covering from your bulb-beds; as soon as the earth is dry enough to crumble, with a small hoe carefully mellow the earth *between* the rows of bulbs, and work it loose with *your hands*, in the row itself. Leave the surface convex, that superfluous rain may flow off.

Transplant roses that are to be moved. Divide the roots of such lilies, peonies, irises, &c., as are propagated by division, and replant.

As fast as the soil allows, spade up your borders, and flower compartments, giving first a good coating of very fine, old, pulverized manure.

If you have hot-beds you may bring forward most of your annuals, so as to turn them out into the open beds as soon as frosts cease.

But defer sowing in the open air until the first of April; and then, sparingly; sow again the middle of April, and on the first of May. Only thus, will you be *sure* of a supply. If you gain more than you need by three sowings, should all succeed, you have friends and neighbors enough, if you are a reasonably decent man, who will be glad to receive the surplus.

We leave you now to the care of Common Sense and Industry; and hope, in two weeks, to visit you again and find that you have thriven under their tutelage.

Peach-tree Roots. — Thoroughly examine the collar of your peach trees; probe every spot where gum is collected, trace along the channels, and ferret out the worms. Repeat the operation two or three times during the growing season. We have found these worms *two feet above the ground*, bedded in the crotch of the tree, where the head had been formed near the ground.

Strawberries. — Those who mean to make a spring-planting, should put out their roots just as soon as the ground is dry enough to work without lumping.

A LIST OF PEARS, CHERRIES, AND PLUMS,

Our readers are, we suppose, making their spring selections of fine fruits. Some of them may desire a list of those which are universally admitted to be of first-rate excellence. We cannot include, of course, *all* that are first-rate; but we put none in that are not so.

I. PEARS.

1. SUMMER PEARS, *or such as ripen from the first of July to the last of August.*

1. Madaleine, or Citron des Carmes.
2. Bloodgood.
3. Summer Francréal.
4. Dearborn's Seedling.
5. Julienne.
6. Williams' Bon Chrétien.

2. AUTUMN PEARS, *or such as ripen from September to the last of November.*

7. Steven's Genesse.
8. Belle Lucrative.
9. Henry the Fourth.
10. Washington.
11. Dunmore.
11. St. Ghislain.
12. Seckel.
13. Beurré Bosc.
15. Andrews.
16. Marie Louise.
17. Doyenné or fall butter.
18. Dix.
19. Petré.
20. Duchesse D'Angoulême.

3. WINTER PEARS, *or those which ripen during the winter and spring months.*

21. Beurré Diel.
22. Hacon's Incomparable.
23. Passe Colmar.
24. Beurré Ranz.
25. Columbia.
26. Beurré D'Aremberg.
27. Van Mons Leon le Clerc.
28. Beurré Easter.
29. Chaumontelle.
30. Glout Morceau.
31. Prince's St. Germain
32. Winter Nelis.

Those who wish only *four* trees, may select Nos. 2, 6, 20, 26. Those who have room for *eight*, to the above may add 13, 23, 25, 32. Those who wish sixteen trees, to the above may add, 1, 3, 11, 14, 18, 21, 24, 28.

II. CHERRIES.

1. Bauman's May or Bigarreau de Mai.
2. Black Eagle.
3. Knight's Early Black.
4. May Duke.
5. Elton.
6. Bigarreau, or Spanish Yellow.
7. Belle de Choisey.
9. Black Tartarian.
10. Downer's Late.
11. Napoleon.

For a collection of two trees, 4, and 9; for four trees, add 6 and 10.

III. PLUMS.

1. Green Gage.
2. Jefferson.
3. Huling's Superb.
4. Coe's Golden Drop.
5. Purple Gage.
6. Cruger's Scarlet.
7. Washington.
8. Red Gage.
9. Smith's Orleans.
10. Royal de Tours.

For two trees, 1 and 4; for four add 2 and 7. The following are said to be suitable for light sandy soils, on which plums usually drop their fruit: Cruger's Scarlet, Imperial Gage, Red Gage, Coe's Golden Drop, Bleeker's Gage, Blue Gage.

No one man can make out a list that will suit all; and those who are acquainted with fruits will reject some from the above list and insert others. But it may be safely said, that he who has in his collection the above varieties, will have a collection comprising the best that are known, and without one inferior sort, although there may be many others *as* good; which may be added by such as have room for them.

GRASS SEED ON WHEAT-LANDS.

Mr. Vanhouten, of Marion county, mentioned to us his practice in respect to his wheat crop, which struck us as worthy of notice. He collects from his hay-loft, during the winter and in the spring, all the grass seed which has shelled out; and from March to the middle of April, as the case may be, he goes over his wheat and sows the seed. When the wheat is harvested there is a good coat of grass, which may be at once pastured for a few weeks. The cattle are then turned off and the grass allowed to grow. The next spring and summer the field lies fallow, and is plowed in autumn and seeded to wheat again. In this way he has for twelve years raised wheat from the same ground without the intervention of any other crop; and every year he thinks his crops improve.

Mr. Vanhouten has promised us a full account of his method of raising wheat.

Friend Beeler never promised to give us any account of his way of procuring fine woodland pasture, but we are ready to receive it without any foregoing promise.

MR. BUCKMINSTER FOR BUCKWHEAT.

Mr. Buckminster, of the Massachusetts Ploughman is a warm advocate of Buckwheat. At a late farmer's meeting in the legislative halls, in Boston, in discussing the subject of small grains, almost every speaker expressed contempt for this grain.

Mr. Gleason, had a poor opinion of buckwheat; thought it drew more from the ground than any other grain; he knew of no use for this grain, as an article of human food, except it was to burn one's throat; for it could only be eaten while hot; and as food for hogs, he would as soon go to the saw-mill for a load of saw-dust, as he considered them of about equal value. Mr. Morton of Hadley, had no great opinion of Buckwheat; thought it good for hogs, five pecks being equal to a bushel of corn; he would not have the straw brought into his yard, as it would stock his grounds with seeds so that three hoings would not eradicate it: he had seen it grown ten years in succession so that even sorrel would not grow on it. Mr. Allen of Pembroke knew but little about buckwheat, but quite

as much as he wished to know; he denounced it, cakes and all.

Against these testimonies Mr. Buckminster, in the, Plowman of February 14, lifts up his voice.

On light soils, by sowing early and plowing under the first crop, in July, there will be time for another crop to ripen its grain, and the land will grow better under such tillage. A near neighbor of Mr. B's sows in May, plows under his crop when in blossom; then sows again for grain, and his land is growing constantly better under the process, and he harvests from thirty to forty bushels to the acre. This is, however, a large yield. The grain should be cut when the first kernels are ripe; for if one waits for all the blossoms to drop and fill out with grain, the earliest ripe will shell off in harvesting. Cut thus early, the straw is thought by Mr. B. to be as nutritious as oat-straw, and he would as soon think of burning one as the other.

Have any of our readers had experience in this crop? Our own experience has been chiefly in the cake line, and we profess a partiality to this second-harvest labor.

The vexation of buckwheat for edible uses has always been, the *grit* of the flourr. A writer in the Albany Cultivator secures a crop in this manner: A bushel of rye is sown to the acre with it; they come up together, but the buckwheat speedily outstrips the rye, which becomes a "smooth green carpet below." On this aristocratic parlor floor, the grain, when cut, is not troubled with the grit of the soil, usually dashed upon it by rains. The rye affords, the next season, a pretty good crop of itself; or it may be plowed under.

Root Grafting.—In speaking, on page 34, of root-grafting, we said the wax should be melted and poured on warm; but omitted to say that the root and scion should then instantly be thrown into a bucket of water, else the heat of the mixture will destroy the vitality of the wood. There are several ways of putting on the composition, according to the *knack* of the particular operator. One, splice-grafts, wraps *tow* about it, and then waxes. In dry soils this method is good. In wet soils and heavy clays, many will rot and die.

Another, tongue-grafts, *wraps nothing about it*, but dexterously pours the wax, turning the graft round while doing it so as to receive the mixture on all sides; the whole operation, turning, pouring, and dropping into water is done in a second or two.

A third, makes strips of cloth, dips them in the melted wax and winds them around the graft. In this case they are not to be wet.

A fourth, uses the wax in a cold state. It is cut into thin strips and wound around the point of junction.

Grape Vines, should be trimmed before the sap begins to rise, else they will bleed, to their great injury. If it is neglected till the sap is in motion, let the cultivator wait till the leaves are about the size of a dollar; then cutting may be performed without injury.

COMMUNICATIONS.

SHEEP-RAISING---ANSWER TO ENQUIRIES.

Greencastle, Ia., Feb., 1846.

Editors of Farmer and Gardener:—If there should not be a more satisfactory reply, I submit the following in answer to the "enquiries" of "A Beginner:"

"1. I wish to supply my farm with a moderate flock of sheep. I know little about the improved breeds except the names—Southdown, Merino, Saxony, &c. Which ought a man to procure where wool is the object."

The Merinos or Saxonies should be procured where "wool is the object." The Southdown, however, being a middle-wooled sheep, is sometimes raised with a view to profit, both for the wool and mutton. They are a sheep of good size, fatten kindly, are hardy and good nurses; but are prized mainly as a mutton sheep. The New Leicester probably ranks highest as mutton sheep; but are said to be less hardy than the Southdown. There are still other breeds of large, long-wooled sheep raised in the United States, as the Lincoln, &c., and there are those who are of opinion that they may be raised profitably for the wool, long wool answering some of the purposes of manufacturing better than the finer short wool: yet where wool is the object I should prefer the fine-wooled sheep, there being a much greater demand for fine wool than for the coarser kinds of long wool.

"Where should I buy, probably, to the best advantage? Are there good flocks near Cincinnati?"

To this question I am poorly prepared to reply. I purchased, in company with Mr. Black of this place, a few hundred fine-wooled sheep in Ohio, last April, mainly in Clinton county. Nathaniel Linton of this county has a very fine flock of superior sheep. In the fall we procured a few hundred very good sheep in Miami county. Of the flocks in the neighborhood of Cincinnati I know nothing. One general difficulty I found in procuring fine sheep. Flockmasters desire only to sell their aged and imperfect sheep, and most of them will not sell their choice sheep at all. But to conclude this item, I can say that I found good sheep very hard to get, in the part of Ohio which I visited, which was the counties named above.

"Is it best to get pure blood, or will grade sheep answer for fine wool?"

For those who are commencing the sheep business, and have, consequently, much to learn before they can understand well the management of a flock, I should think it very safe to commence with grade ewes. In the monthly Journal of Ag-

riculture for January I find the following prices of wool: "American full-blood Merino, 36 a 38. American half and three quarter Merino, 30 a 33; making a difference only of five cents; supposing a yield of three pounds to the sheep, would make a difference of fifteen cents to the sheep between the full-blood sheep and these grade-sheep. As a set-off to this difference, you can buy grade-ewes much cheaper, and any losses that you may sustain in your sheep for want of experience as "a beginner" will consequently be less. But the great consideration is, if your ewes are grade, your bucks should be full-blood, when your lambs will be constantly approaching the quality of the bucks, and soon attain that standard; for it is the opinion of some good shepherds that the fourth generation from the common *ewe* and a fine buck will equal the buck, and many of even the *third* generation. Your grades may still be disposed of to "a beginner," and your increased experience may justify your keeping the more valuable lambs.

Sheep should not be purchased by "names." Cupidity may induce some to represent their sheep as full-blood when they are but inferior grades; others may do it through ignorance, not knowing the true character of their sheep. To purchase safely, a man should be qualified to determine for himself, the true quality of sheep. To judge of them correctly they must be purchased before they are sheared—then a correct judgment may be formed of the quality of the wool, the quantity that a sheep may yield, for there is a great difference in this respect, some yielding much more than others: the pile should be thick, fine and long. The health of sheep should also be observed with great care, as much of the success of "a beginner" may depend upon the health and general thrift of the sheep purchased.

I will not trouble you with an opinion as to the superiority of the Saxons or Merinos; this is a question about which there is much controversy, and, to say the least, is a doubtful question. Pure-blooded flocks of either race are scarce. A large majority of flocks, so far as I have knowledge, are found to be a mixture of the two races.

"If some one who has made it a business to keep sheep, would give their method somewhat in detail, it would be of great help to 'a beginner.'"

In justice to you, sir, I must acknowledge that it has not been my "business to keep sheep" a great while. My flock consists of about five hundred, mostly ewes. I summer in bluegrass woodland pasture; salt is kept constantly by them; no further care is bestowed, except to see that they are not killed by dogs. They do better to be kept in lots of about an hundred, and should be changed into fresh pasture frequently, if possible. My bucks are kept separate, and are let to the ewes on the first of November. The lambs commence dropping about the first of April. In winter I keep them separate in small lots, the lambs and weak sheep by themselves. I feed hay and stock corn fodder as is most convenient, as much as they will eat. Sheaf-oats are frequently given, and prove good; and in this case, no other grain is used: but when they are not fed sheaf-oats, I give daily about half a bushel of shelled corn or its equivalent in threshed oats, to the hundred. Salt is also kept constantly by them. Shelters are provided which they use at pleasure. I give my sheep free access to the pastures at all times of winter. In fair pleasant weather when there is little or no snow, they eat little or no hay, but consume readily their allowance of grain. I endeavor to keep my sheep through the winter as near the order that they are in summer as possible.

Lambs should have, the first winter, particular care bestowed on them; the best hay should be given, and the best shelter, with grain twice a day. My weak ones are selected, from time to time, and placed in a rye-field, which I always prepare for this purpose. If I accidentally have a few early lambs, they are also put into this field. Daily attention is required during lambing time.

Before grass commences in the spring the flock should be tagged. I shear about the first of June, and wash them well about six or eight days previous. From the time they are washed until sheared, they should be placed on clean pasture where there are no dirty paths or banks.

If I have not been explicit enough, I will cheerfully, at any time, give any additional information in my power.

Yours, respectfully,
A. C. Stevenson.

CURE FOR BOTS---AN ENQUIRY.

Lafayette, February 27, 1846.

Mr. Editor:—I am a friend to agriculture and agricultural papers: for the latter not only benefits the farmer; but spread an influence and correct principles among the farmers of our country that no other papers could do. They are mediums through which much valuable instruction and information can be and is conveyed. We thereby gain a knowledge of the diseases that are common to the horse, the ox, sheep, &c., and ascertain what remedies are used for those diseases. And it is for this, that I now write you. I wish (and undoubtedly many of your subscribers are desirous of the same) to know of an effectual and certain cure for the bots in horses. "Why," say some of your readers, "I thought every one knew what was good for the bots." Certainly, almost every one does know what is good for them; but we would like to know a remedy that is at once simple, effectual, and will immediately *kill* them without any injury to the horse. We have all heard, and undoubtedly tried sweetened milk, oil and molasses, oil and milk, &c., but these only stop their working for the time being, if at all; and they are as likely to take hold again the same or the next day, as before. We want something that will immediately kill them, thereby giving relief to the horse, and then with some pulverized oil-cake or the like, they can be carried away.

This is a dreadful disease; one that has suddenly destroyed the lives of many valuable horses, and there are many of your readers, with myself, who would be grateful for some effectual remedy for it. A friend of mine, who has lived long in the world and claims to be a good judge of a horse, and, withal, considerable of a farrier, has a medicine which he gives for the bots that invariably kills them, and immediately gives relief to the horse, so that in half an hour he can perform as much labor as at any time in his life. It is not a liquid, but what it is no one knows but himself, as he will not tell it. This is wrong. I believe we are placed in this world to benefit each other;

and if we possess any knowledge of this kind that can be of use to our fellow men, we should willingly cast in our mite and let it do for others as it has done for us. A. D. W.

MAN OF THE EARTH.

LAWRENCEBURGH, Feb. 23, 1846.

We are very much annoyed by a kind of vine, which grows on some of our bottom lands, called, by some, "wild sweet potato vine," by others, "man root;" which, or whether either, is the right name I cannot tell. It has a large root, resembling, some, a sweet potato in appearance, but sometimes as large as a man's thigh, generally far enough below the surfrce to be out of the way of the plowshare. The vine growing from it resembles very much the sweet potato, with a flower or blossom like a morning-glory. I wish to obtain some information as to the best manner of destroying it; and hope, through the columns of the Farmer and Gardener, to receive something on the subject. I thought last fall of "double plowing" some of the ground—i. e., run a furrow with a wide-shared plow, and run another plow in the botton of that furrow, hoping to cut the top of the root, which contained the eyes, off, which might have a good effect to kill the vine and not *hurt* the ground. I could not procure such a plow as I thought would answer the purpose. Information as to where a suitable plow could be procured, and your opinion as to the mode, whether it would affect the root, and do good or evil to the ground, would be of interest. A. R.

On receiving this we addressed a line to Dr. Plummer, of Wayne county, in hopes that he might have had some experience in killing this "man of the earth." We insert his reply.

From the description given, I have no hesitation in saying, the plant alluded to is the *convólvulus pandurátus*, with which I happen to be very familiar. As the sweet potato and morning-glory both belong to the same genus, (convolvulus,) it is no wonder this weed is called "wild sweet potato vine;" and the flower resembles that of the morning-glory. I suppose it is called "man-root" or "man of the earth," from the root, which is like a magnificent sweet potato, sometimes being forked. The Indians call it *mechoacan*. The root is a gentle cathartic and otherwise medicinal. The vines either trail along our fences, sometimes burying them completely in a profusion of foliage, or form a tangled patch over the ground: they sometimes grow ten to fifteen feet long; and when in full bloom, are by far, more beautiful than many of our "ornamental" plants. But farmers are apt to disregard beauties so misplaced as cockle in the wheat fields, and the convolvulus in fence-rows; and I should be glad to be able to direct the husbandman how to be able to exterminate root, branch, and beauties from his cultivated grounds. The root is not unfrequently a yard long, a foot to eighteen inches in circumference, and so tenacious of life, that it may be propagated by cuttings like a potato. Its lying so deep beneath the surface, too, (sometimes a foot) makes it more inaccessible to our destructive efforts. I commenced an experiment on *my* plants last year; and if it fails, I intend to trace the vines to the root, dig down to it, bore a hole through its whole length with a crow-bar or a long auger; and pour into it boiling water, lye, sulphuret of potash or some other destructive agent. How would it do, to fill the holes with corn and turn some "land-pikes" in to dig it out?

There are two other species of convolvulus in the northern and western States, and I think in England, called "bind-weed;" the *C. arvénsis* and *C. sepium or repens:* both, very noxious to tillage. The roots of all are perennial. J. T. P.

There need be no fear of injuring the ground by subsoil plowing. The bottom lands would be much benefitted by it. This plow brings nothing to the top, but pulverizes the subsoil to the depth of from twelve to fifteen inches, leaving it where it was. These plows can be had in Cincinnati of Ely & Campbell, Lower Market Street, or of A. G. Willard, Indianapolis. Cost in Cincinnati ten dollars, and the same here, with the addition of carriage.

We suggest a trial, during the summer, of cutting off the vines, about once a fortnight, close to the ground. A root is dependent for its existence upon the leaf, and by a vigilant attention, through the season, we suspect that it might be thus destroyed.

Have any of our readers tried experiments, or had experience on this subject? If so, gentlemen, let us hear from you.—*Ed.*

POTATOES AND THE ROT.

LOGANSPORT, Feb. 28, 1846.

Mr. Editor:—Having given some expectation that I would give some account of my crop of potatoes, although not more than an average crop, I comply.

We planted sixty bushels of seed cut into small pieces, on, as we supposed, about four akers of ground. The product was about 800 bushels. The latter part of the season was so dry that they did not have time to grow to the size they would have done if it had been moister.

As to the decay, we were examining when you were at my place. It was *a* potato rot, but I am now satisfied not *the* potato rot so much spoken of. We have laid by several bushels of them, and find, that when they are exposed to the air the rot has ceased, or rather dried up. We have found it in no other kind than the Neshanoc, as they are called, and mostly among those which were planted early. I think it rather a decay after they came to maturity, than any disease. I have thought, for some years, that it was time to introduce some other kind, if we could find any with all the good qualities which that potato has. If there should be any new kinds that are thought well of, we should be glad to make a trial of them.

We have saved some seed, and intend planting it in the spring, and if anything worthy of notice is the result, it will be at the service of the public. And I would now propose a plan for your subscribers, if it would be agreeable to you and them, that if we meet with anything new, such as root

or seed, that we think will be useful to our fellow-farmers, that we deposit with you a small quantity that you may send it when opportunity offers, to those in different parts that will be likely to prize and take care of it.

Our cabbages have not kept so well this winter as usual: we laid them away in rather warm weather. They heated and have not kept well. I now think they should be almost or quite frozen when laid away. DANIEL EMBREE.

BEES, BEEHIVES, AND BEE-HOUSES.

BROOKVILLE, Ia., Feb. 27, 1844.

Editors Farmer and Gardener: — The plan of a double bee-hive proposed by your Laporte correspondent, may possess some advantages over the ordinary hive by enabling us to change the comb once a year, thereby preventing a diminution in the size of the breeding cells, and consequently preventing a diminution in the size of the working bees. But it seems to me that upon the score of economy, they are somewhat objectionable; for he proposes that the comb in the lower hive shall be changed in the spring; a season of the year when we may reasonably infer that this hive contains but little honey. It seems to me that, as honey is the principal object in rearing bees, the summer season would be the preferable time for making the change, and that it would be better to remove the comb from the *upper* section, by which means an additional amount of honey would be gained, besides having the empty section placed below, which is a farther advantage, for bees much prefer working comb *downward*. To make this change, however, will be found a task of considerable difficulty. To say nothing of the danger of being stung, it will be found very difficult to drive the bees from the hive. Great numbers of them will be destroyed, and the whole hive, and indeed all the neighboring hives, will be thrown into commotion from the smell of the honey, in spite of all the precautions we may use. I have on several occasions driven, and assisted others to drive, bees from hives, and I have found it impossible to clear the hive of them without entirely removing the comb. After they are driven, many of them refuse to go back to the hive, and many more are unable from being hurt and covered with honey. But one of the greatest evils which results from driving bees, is the smell of the honey, which is sure to attract the neighboring swarms, which generally ends in at attempt to rob each other.

I am aware that your correspondent relies mainly for his honey upon the caps which he places upon the tops of the hives; but it is a question, whether he would not realize more by suffering the comb to remain (using the cap, of course) for three years, and then destroy the bees in the usual way and take the honey. By removing the empty comb every spring, we rob the bees of all their breeding comb, and consequently greatly retard their increase, which prevents them from swarming so often as they otherwise would; we shall, therefore, in all probability, lose more by preserving them after this plan than we should by destroying them at the end of three years.

It has been ascertained that bees, after the third year, begin to degenerate, and either die or dwindle away until they become wholly useless.

After having seen the bee-house and several kinds of patent hives tried, I am firmly convinced that a *small*, square, *smooth* hive, made something after the ordinary fashion, is the best plan for the rearing of bees. Nothing that I have ever seen tried will protect the bees from the ravages of the wax moth (tinea mellonella;) we must therefore rely upon the bees to protect themselves, using the precaution to put them into hives suitable to the size of the swarm. Small swarms are almost universally destroyed, whilst large ones are generally able to protect themselves if placed in what would usually be considered a small hive. Small territories are more easily defended by a regular and given number of troops than large ones, and a large swarm of bees in a small hive will be pretty safe, whilst in a very large hive or bee-house, they are in much danger of being destroyed.

I have seen a great many houses tried, but have known but two or three instances in which the bees prospered, and in these cases only for two or three years.

There are many objections to bee-houses: the greatest of which is their liability to be infested by worms. The house affords an excellent shelter for the moths which congregate in them in large numbers and deposit their eggs. I have seen hundreds of bees engaged in my bee-house, at the same time, in chasing the moths over the whole interior; these become much enraged and agitate the whole family, causing the loss of much time which might be spent more profitably. Another great objection to houses is their extent, over almost the whole of which, a large number of bees are constantly employed filling up the inequalities with propolis, by which a large amount of time is lost, and nothing at all gained. Bees but seldom swarm in a house; never, I believe, when they build comb outside of the hive in which they were when first placed in the house. A great deal is lost in the failure to increase from this cause. It is well known now, that but one queen can exist for any length of time in the same family, whether in hive or house; it will therefore be seen that the colony will depend for its size and increase upon the fecundity of the queen, who will produce but few, if any more, in a house than in a hive.

I am convinced that the worker-bee does not live more than six or eight months, so that a swarm in a house is never larger in the spring than in a hive. It will therefore be evident to all, that by keeping bees in a house, we lose all the increase and gain nothing in honey over what we might realize from a single hive.

It is a fixed law of their *nature* that bees shall swarm, and anything which counteracts this law injures them, and results in their total destruction, by preventing the operations of the only mode provided by Providence for their increase.

The usual plan adopted to prevent the ravages of the moth in hives, is to raise them from the bench, by pebbles or nails driven in the corners. This plan may have some advantages, but I am satisfied it leaves too much space to be watched by the bees, and furnishes ample room for the moth to deposit its eggs around the bottom of the hive or in the lower portion of the comb.

The better plan, no doubt, after having put your bees in a small smooth hive, is to cement it down

tight to the bench, so that the moth cannot lay its eggs under the edges, and have the entrance to the hive so small that the bees can guard against the entrance of this enemy.

The plan of keeping bees in dark places, or burying them in the ground during winter, I have heard spoken of favorably, but know nothing from experience. R. H.

REVIEW OF VOLUME ONE---NO. 4.

Soap-making, Castor-Oil Soap, Per cent of Potash in various Woods, Continuation of Milk in Cows, Parsnep Seed.

Soap-making, p. 81.—I feel that I have a right to speak here, by a sort of *ex-officio* authority. Always delighting in chemical manipulations, I have claimed the privilege, at home, of officiating at the alliance of the saponaceous parties; and I suppose I am not a whit behind the chiefest of the *greasean* artists, in a domestic way.

In addition to the explicit and instructive lessons of F., I would say to the novitiate: if it should happen not to be convenient to place the lime at the "*bottom* of the leach-tub," it may be thrown in at any subsequent time, even on the top of the ashes. I have sometimes intermixed the lime and ashes. With clean fats and a tolerably pure, strong alkali, the formation of soap should be effected in half an hour to an hour's boiling; when it is not, the operator may be assured there is "something the matter."

In my common-place book, I find some old notes of my early experience in this case: perhaps the beginner may gather a hint from them; perhaps take courage, when he is on the point of despairing; and it may be, he will find one or two novelties in them: they run as follows: "1832. Dirt appears to prevent the formation of soap. Some soft soap will form a *jelly* with water; others will unite and remain pasty; some bear one-third water.—Boiled some in pure fats and ley for a long time; but no soap appeared. The mixture tasted strongly of lye; and I added fat. I still failed and added lye. No soap. I concluded the potash in the lye was not sufficiently decarbonated, and put the materials aside. By standing undisturbed a short time, the contents of the kettle unexpectedly became *good soap*."—"Added a quantity of empyreumatic castor oil to a kettle of lye. Saponified with difficulty; but at last a transparent mass was formed, hardly distinguishable in appearance from the oil itself: it would not gelatinize with water, as most soaps do. I added a solution of salt to the hot, but not boiling, soap; stirred it well and set it aside. After it became perfectly cold, it remained soft; but after several hours, I obtained a nearly transparent, greenish, hard soap. When thoroughly dried, it became opaque and whiter." (This soap being made of *castor oil*, ought to be most emphatically *detergent*. I found this soap so light as to float on water: bathers would experience the convenience of this property, as the soap could be tossed from one to another in the water, without danger of its sinking.)—"A large quantity of fats was put into *cold* lye, and allowed to stand one or two days. A portion of these ingredients was then put into a kettle, (the lye predominating,) and boiled several hours. No soap was formed, though the lye was strong. I added *more fat* and soap soon appeared. It was very caustic, however, from the presence of uncombined lye, which separated in the course of a night; and the soap being afterward boiled with *water*, became gelatinous; but before this second boiling, it would not gelatinate with water."—"Strong lye and fat were boiled together several hours, but did not unite. After standing ten or twelve hours, *much dirt* was deposited: this was removed and the materials again boiled. Soap was soon formed."—"The waste lye (muriate of potash) thrown upon grass, destroyed it to the earth, wherever it ran."—The juvenile chemists may now exercise themselves in accounting for the foregoing freaks of my soap-kettle; remembering what F. has told them; and that the affinity between the constituents of soap, is *very feeble;* so feeble that I have decomposed hard soap in solution, by merely blowing into it through a glass tube: the carbonic acid of my breath separating the margaric, stearic and oleic acids from the soda.—The tarnish of the brass ladles, &c. by the lye, may be quickly removed by wetting the utensils with a strong solution of salt; or rather by soaking them in it.—"To two ounces of moderately strong lye, I added 108 grains of tartaric acid, which precipitated 144 grains of bitartrate of potash, containing, of course, thirty-six grains of potash. Then thirty-six grains in two ounces make five and one-fourth ounces of potash in a gallon of lye: to decompose this six and three-quarter ounces of salt (chloride of sodium) are required." And so for larger portions of lye.—The ashes from old fence-rails, and rotten wood of all kinds, are hardly fit for soap; and the ashes in the soundest wood, differ greatly in value: beech wood yielding only twelve parts of potash for 10,000 parts of wood; oak fifteen parts; and elm, thirty-nine parts. The elm is certainly the richest in potash of all the trees of our forests, which I have experimented on. The difference between the ashes of this and other trees, is impressively discoverable by the tongue. In estimating the value of the elm tree, our farmers should bear this property in mind, especially if they manufacture black-salts. The *bark* of trees yields nine to thirty times more ashes than the wood.

And now we will ask the privilege of a little gentle criticism; "*spirits* of hartshorn" is not "*aqua* ammoniæ."

"Patent secrets:" patent, from *pateo*, to lie open or unconcealed; all the boys know what a *secret* is, and I leave the rest of the criticism to them. I suppose they know that whatever is patented, has first to be told to all the world.

Is grease really dearer than rosin, wherever rosin is added to soap?

Continuation of Milk, p. 85.—The reader will find an additional instance of a protracted flow of milk, in a cow twenty-one years old, on page 314. I believe the cow is still living and yields milk. Several years ago, the owner attempted to fatten her for the butcher; but her milk continuing, and improving in quantity and quality as he fed her, she was allowed to live; especially as she did not "take on" fat.

Parsnep Seed, p. 85.—The ordinary parsnep seed will certainly rarely vegetate after the first year: I have often proved this. I have examined the seeds used by G. Mendenhall, and find them much plumper than any I have ever elsewhere seen; and know not to what else to attribute their prolonged vitality. J. T. P.

ANSWER TO ENQUIRIES

Management of Cows---Cutting Timber.

Mr. Editor:—As your prospectus for the Farmer and Gardener opened a door for the reception of correspondents, I have thought proper to trouble you with a short communication in answer to some inquiries, and also to ask some questions myself. Mr. W. wishes to know the best way to manage young cows, to make them good milkers. The best way *I* know of is, kind treatment, a plenty of good food with roughness, and a good shelter for them at night.

Mr. H. wishes to know the best time to cut timber, to make it durable; and whether timber for a frame ought to be seasoned before it is worked. In answer to his inquiry I would say, that I believe the best time to cut timber for almost any purpose, is when the sap is in full flow, and especially oak; the wood being full of sap it improves its strength, makes it heavier, and more durable. Timber for a frame should not be seasoned before it is worked, if convenience and durability are wished for; the sooner timber can be sheltered from the weather the better, as it prevents its cracking. Perhaps the above may differ from the opinions of many of your readers; but let them who doubt it, try it, and I think they will be convinced.

Enquiry.—I wish to know if the wheat-fly treated of and described in No. 3, volume 2, of the Farmer and Gardener, by Mr. Asa Fitch, is what is commonly called the Hessian Fly, that is so destructive to the wheat crops in this part of the country sometimes; if so, I think Mr. Fitch is very much mistaken in his idea of its habits.

The reason why I make the above enquiry is, that I know of no fly that injures wheat in the way he describes. J. M. W.

No: it is not *the* wheat fly, or Hessian fly (*Cecidomyia destructor* of Say) that he attempts to describe; but others which he regarded as less known; and some not known, hitherto, at all.—*Ed.*

THE POLAR PLANT

Seems destined to acquire a notoriety in the Farmer and Gardener, which, perhaps, it does not deserve. But the polite invitation of H. P. B. to renew the subject, is a sufficient inducement to me, to make the following observations:

1. I suppose the polarity to be brought about by the action of the *direct* rays of the sun, upon the *surfaces* of the leaves. This effect of light is exhibited on leaves of various plants when detached from the stalk and suspended by a thread.

2. All plants do not possess the same physical construction, nor the same natural construction; and therefore their susceptibilities are different. The succulent and the arid plants are formed in the same sun; and by the same heat wax is softened and clay hardened.

3. I am aware that the *physical* law referred to has been maintained by high authority; but I have always considered it wholly untenable. Has H. P. B. not often seen at mid-day, the golden discs of a thousand dandelions, broadly unfolded to his view; and a few hours afterward, every flower to be so stringently closed, that nothing appeared upon the spot but the verdant involucres; to be opened again late in the morning of the next day? How common-place, too, is the similar conduct of the morning-glory, and other species of convolvulus, and a multitude of other flowers! All these *expand* their beauties to the hotest sun; and collapse when his *drying* energies are withdrawn. If the "broad face" of the sunflower is presented to the solar beams "from morning till night," how can they exert a one-sided drying effect upon the stem just below, thus *shielded* from the heat? Besides, no difference in point of humidity is perceptible in the different sides of the pedunde; nor would artificial heat, directly applied to the stem, produce the same phenomenon in the flower.

4. Many other plants, especially, I think, those which have opposite leaves like the polar-plant, *do* "show the same effect;" but not in so striking a degree. Of two opposite leaves, I have often seen the east one drooped to receive the early morning rays, and the west one to rise almost erect, for the same purpose: watching them as the sun performed his course, I have seen the east leaf gradually rise, the west leaf gradually fall, till at evening, the morning position of the leaves would be reversed; the east leaf would be erect, the west one fallen: before morning the east leaf would droop also, so that the points of the two leaves would often touch the stem below. (May I here whisper to the young reader, that there are many such wonders annually displayed in our homeliest gardens, but wasted upon the desert eye of inattention.)

I believe I have now reverted to all the questionable points of this subject as presented by H. P. B.; and I wish him in due season to test the accuracy of the views entertained by J. T. P.

BLIGHT IN PEAR TREES.

Mr. Editor:—Though much of late has been said and written on the subject of "*blight in pear trees*," yet, as there is not an entire coincidence of opinion, neither respecting the cause nor preventive, I beg leave to offer a few thoughts, through the medium of your valuable journal.

To the question, "what is the cause of blight!" it appears to me that there need not be so formidable a parade of hypothesis as has been exhibited—a plain question, this, which should receive a plain answer. While one writer contends that the blight is the result of insects; another, that high temperature is the cause; a third, with more reason, attributes the destruction of the pear tree to *cold*, or, in other words, to too low a temperature. Now, I believe that, although neither of these causes gives the correct answer, yet the last may be considered the essential cause. Indeed, the full and efficient answer may be couched in these words: *an unsuitable climate.* It is a well known fact, that vegetation in an uncultivated state, gradually disappears as we approach the northern or southern poles of the earth; or which is the same thing, ascend very lofty mountains. For example; "On approaching," says a writer on botany, "the Lapland Alps, we first arrive at the line where the spruce-fir ceases to grow." And why does it cease to grow? Certainly, because the climate and its life are incompatables; and therefore, at all altitudes the same with "that line," the spruce-fir is properly a green-house growth. "The

Rubus Arcticus," says the same writer, "had already, before we arrived at this point, ceased to bring its fruit to maturity." Now does not this last statement afford the clearest proof, that notwithstanding the *rubus arcticus* vegetated, yet the locality did not at all suit its nature? Hence its failure to bring its fruit to maturity.

A condition very analogous to this last obtains in this climate with respect to the pear tree. The rubus arcticus, although it grew, we are informed, did not ripen its fruit, and this failure, no doubt, arises in consequence of the nature of the fruit requiring a length of time of warm weather, which the climate cannot afford. But this does not hold altogether good with respect to the pear; for it is known that the pear tree never fails, when in health, to ripen its fruit, should it have escaped the spring frosts. And this, because a few months of warm weather is sufficient to effect this purpose. So, if the tree can be made to succeed, we need, in general, to have no fears about the fructification.

Leibig, in his work on agricultural chemistry, makes the remark that, "many conditions are necessary for the life of plants; those of each genus require special conditions; and should but one of these be wanting, although the rest be supplied, the plants will not be brought to maturity." Now suppose that Indiana possesses everything necessary to the growth of the pear tree, but a proper kind of atmosphere or *climate;* then what follows, allowing Leibig's remarks to be true? Assuredly, that we cannot raise pears to any great extent.

My conclusion then, is, that Indiana is an unsuitable locality for the successful cultivation of the pear tree — especially, all the more tender varieties; and that all the theories concerning blight, and the efforts to surmount the difficulties arising from an unnatural climate, must forever fail. This remark, indeed, requires modification; for, no doubt, to some extent, the more hardy varieties may succeed, and, perhaps, even those less hardy may, for some years, promise to do well, till a season entirely unsuited to their existence plays destruction and spreads ruin far and near among the prospects of the enterprising horticulturist — thus, causing him to feel more sensibly his loss.

The immediate cause of blight, I have no doubt, is intense cold operating on a growth not able to withstand its severity; and thus, separating compounds which, entering into new combinations, produce poison. This poison is sugar. The starch, contained in the trunk and branches, is changed, through the agency of cold, into sugar; and this sugar, by warmth is, in its turn, changed into a ferment. The ferment is absorbed into the tree at large, and though but a single branch, in the first place suffers, a gradual spreading, if I may so say, of the virus, is very apt to destroy the whole tree. Hence, a very small amount of the poisonous matter introduced under the bark of a healthy tree of the same species, does not fail to enfeeble or wholly destroy it.

I can think of no means as likely to be beneficial in preventing blight as retarding the growth of the tree. Hence, it will be seen, on observation, that transplanting usually proves, for one year, a preventive to blight. Probably a spare soil, together with occasional maiming, might, so far overcome the obstacle of an unsuitable climate, as to render it partially suitable to the culture of the more hardy descriptions of the pear.

Feb., 1846. TYRO.

SELECTIONS.

PLOWING.

We spent an evening not long since in company with a very intelligent practical and scientific farmer, who was discussing with his son the subject of *plowing*, which incidentally brought under review a variety of topics of great interest in the art of cultivating the soil. The son advocated the propriety of turning the earth raised by the plow, directly bottom upwards, so as to present a smooth and even surface when the work is done. It was urged that this method had the merit of killing all grass and weeds better than any other that can be adopted. The father thought differently, and drew with a pencil on a piece of paper, the following diagram in illustration of his views:

The father said that the above oblong blocks are intended to represent furrows seven inches deep and fourteen wide, lapping the edge of the one turned by the plow, onto that of the next furrow only two inches. By this process you expose to the decomposing and mellowing influence of the air, with its *oxygen* and *carbonic acid*, fifty inches of surface, to every inch in length of each furrow.

Son—I don't understand how that can happen, seeing that the furrow is only fourteen inches wide. Will you explain?

Father—Certainly. As each furrow laps but two inches on the upturned surface of the preceding one, it is plain that twelve inches of each sod will be exposed to the air. Then you have seven inches more at the end of the furrow, being the depth to which the plow was driven, making nineteen inches on the upper side. On the under side, you have seven inches at the other end of the furrow, twelve on that which has been turned over, and twelve inches more on the bottom from which the sod or earth has been lifted. This gives a surface of thirty-one inches below, and altogether, a surface of fifty inches. If you do not count the laps anything, (and they are only two inches,) then, by plowing after my plan, you get three surfaces of fourteen inches each, beside two of seven inches each at the ends of the furrow, in the place of *one surface only*, of fourteen inches, when you turn each furrow upside down.

S.—I concede that you get about three times as much surface exposed to the atmosphere by your system, as is attainable by mine. Nevertheless, you must admit, that on dry gravelly soils it is important to keep the earth as compact as possible. Under such circumstances, is not my plan better than yours?

F.—On loose sandy, or gravelly soils, the portion of earth raised by the plow will not hold together in the manner I have indicated. If it has turf and compactness enough to lie up at the angle, and in the manner I have spoken of, it will

be better to have it so than otherwise. If the ground is too loose and porus at the time of seeding, the roller can be, and should be, applied.

S.—I see that you understand the subject of plowing much better than I do; and I should be happy to learn what the mere drawing of a plow through a field many times, and thus breaking up its soil, *adds to it*, or *takes away from it*, so that crops should grow in the one case, and not in the other?

F.—This question strikes at the root of the art of culture, and can only be answered by calling to our assistance the light of modern science. That the thorough stirring of the soil to a considerable depth, either with plow, harrow, cultivator, spade, or hoe, is extremely beneficial to all cultivated plants, is a fact, which was settled thousands of years ago, and has ever since been verified, by all practice and experience. Whether the earth be stirred with the naked fingers, with a clam-shell, a wooden stick, or an iron plow, of the most approved pattern, nothing is added to the soil directly by its cultivation. The important results that follow, are all purely chemical changes in the combinations of matter, a knowledge of which is of incalculable value to the practical farmer.

S.—What are the *changes* in the ingredients of the surface of the earth, which supply plants with much *additional food*, when the soil is well pulverized by the skilful use of rural implements?

F.—As a key to these mutations, you must ever bear in mind these two facts:

First—That no *undissolved*, earthy substance can enter the minute pores in the roots of plants to nourish them. All such solid food must be dissolved in water, to be available. *Secondly*—that, when earthy substances like common salt, the salts of lime, potash, silica, &c., are dissolved, no mere filter like the soil, or a barrel of wood ashes put up to leach, can prevent *salt water* from running away from the roots of plants, and thus at once, depriving them of their proper nourishment, and robbing the soil of its fertilizing elements.

S.—Let me fully understand what you mean. Do you say that, all solid matter in the earth must be dissolved in water before it can pass through the very small tubes in plants; and when solids are dissolved, they are prone to pass with water deep into the subsoil, and into ditches, brooks, and ultimately into the ocean?

F.—Yes. The water that falls from the clouds in rain and snow, and passes no more than twelve or fifteen inches into the surface of the earth, and then runs into creeks and rivers, takes with it in solution, some of the earthy salts used by cultivated plants in organizing their living tissues. If a field be plowed and harrowed repeatedly, at short intervals, and nothing allowed to grow upon it, its cultivation will impoverish it, by increasing the solution, and the washing away of the mineral elements of all crops.

S.—What evidence have you that soluble salts like those in the dung and urine of animals, guano, and other fertilizers, pass with rain-water through the surface soil, deep into the earth, and into brooks and ditches?

F.—Common salt applied to land at the rate of only three bushels per acre has been found in the water of ditches after a rain, that fell soon after the salt was sown, and harrowed in with seed wheat. Any soluble salt placed on a barrel filled with leached ashes, or soil, and then dissolved with water, will pass through the earth, and come out at the bottom like ley. Coloring matter, like that in the liquid, which flows from dung heaps, may be separated by a good filter; but the salt in brine cannot.

S.—What practical inference do you draw from the several facts which you have stated.

F.—First: That all soluble minerals like salt, ashes, lime, guano and stable manure, should be fed to living, hungry plants only in small and repeated doses, and as close to their mouths (spongioles in their roots,) as possible. Care must be taken not to have fertilizers too strong and concentrated. Secondly: That a sound judgment must be exercised in not commencing too soon to plow, harrow, and otherwise stir the soil for a future wheat, corn, or other crop. To understand this important point in practical agriculture, one must be familiar with agricultural chemistry, the composition of soils, and the action of oxygen, carbonic acid, rains, frost, light, and heat, as modified by tillage, on the various substances that form all cultivated plants.

S.—What salts are most likely to be lacking in ordinary soils, which are needed to aid in forming the grain and root crops grown in the State of New York?

F.—They are the soluble salts of potash, soda, magnesia, and lime, being sulphates, phosphates, carbonates, silicates, and chlorides of those bases.

S.—What artificial compound will cheaply supply these mineral substances?

F.—Unleached wood ashes, lime, salt, plaster, and bones. Plants that have long tap roots like clover, aided by a little gypsum, lime, and wood ashes, together with deep plowing, can do much to fertilize a poor soil, by drawing many important minerals from a greater depth in the soil than the roots of wheat can penetrate. Of course such minerals in clover must be buried near the surface of the ground if they are to feed cereal plants.

Genesee Farmer.

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TERMS.—*The* FARMER AND GARDENER *is published* SEMI-MONTHLY, *each number containing Sixteen royal octavo pages, at* ONE DOLLAR *per annum per copy;* SEVENTY-FIVE CENTS *per copy for Four and less than Ten copies; and* FIFTY CENTS *for Ten or more copies to the same Post Office. All subscriptions* IN ADVANCE.